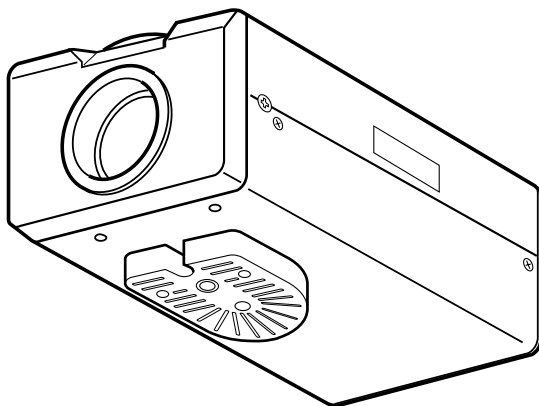# JVC

BOX TYPE NETWORK CAMERA

VN-C20   **INSTRUCTIONS**

For Customer Use:

Enter below the Serial No. which is located on the body.
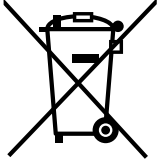Retain this information for future reference.

Model No.   VN-C20

Serial No.

Thank you for purchasing this JVC product. Before operating this unit, please read the instructions carefully to ensure the best possible performance.

Safety Precautions

Information for Users on Disposal of Old Equipment
[European Union]

This symbol indicates that the electrical and electronic equipment should not be disposed as general household waste at its end-of-life. Instead, the product should be handed over to the applicable collection point for the recycling of electrical and electronic equipment for proper treatment, recovery and recycling in accordance with your national legislation.

By disposing of this product correctly, you will help to conserve natural resources and will help prevent potential negative effects on the environment and human health which could otherwise be caused by inappropriate waste handling of this product. For more information about collection point and recycling of this product, please contact your local municipal office, your household waste disposal service or the shop where you purchased the product.

Attention:

This symbol is only valid in the European Union.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

(Business users)

If you wish to dispose of this product, please visit our web page www.jvc-europe.com to obtain information about the take-back of the product.

[Other Countries outside the European Union]

If you wish to dispose of this product, please do so in accordance with applicable national legislation or other rules in your country for the treatment of old electrical and electronic equipment.

FOR USA AND CANADA

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash wish arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Information for USA

This device complies with part 15 of the FCC Rules. Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSETHIS APPLIANCE TO RAIN OR MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTRO-CUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

INFORMATION (FOR CANADA)
RENSEIGNEMENT (POUR CANADA)

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil num rique de la Class A est conforme á la norme NMB-003 du Canada.

WARNING (FOR EUROPE):
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

- This installation should be made by a qualified service person and should conform to all local codes.
- This installation shall be in accordance with the National Electrical Code, ANSI/NFPA 70.
- The unit is to be powered by an AC 24 V power supply.
  The AC 24 V power supply should conform to the following:Class 2 only(For USA),Isolated power supply only(For Europe and other).
- Any Mention in this manual of Alarm inputs/outputs have not been evaluated by UL to beused for Burglar Alarm Functionality.

This manual describes detailed usage of VN-C20.
For basic usage of VN-C20, please refer to "**Start-up Guide**".
For latest information, please refer to "**Readme**" **file in the CD-ROM.**

- The supplied CD-ROM includes "Instructions (this manual)"(pdf), "API Guide"(pdf) and "Search tool".

Introduction

These are general IMPORTANT SAFEGUARDS and certain items may not apply to all appliances.

IMPORTANT SAFEGUARDS

1. Read all of these instructions.

2. Save these instructions for later use.

3. All warnings on the product and in the operating instructions should be adhered to.

4. Unplug this appliance system from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

5. Do not use attachments not recommended by the appliance manufacturer as they may cause hazards.

6. Do not use this appliance near water - for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.

7. Do not place this appliance on an unstable cart, stand, or table. The appliance may fall, causing serious injury to a child or adult, and serious damage to the appliance.

   PORTABLE CART WARNING
   (symbol provided by RETAC)

   Use only with a cart or stand recommended by the manufacturer, or sold with the appliance. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer. An appliance and cart combination should be moved with care.

   Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

   S3125A

8. Slots and openings in the cabinet and the back or bottom are pro-vided for ventilation, and to insure reliable operation of the appliance and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the appliance on a bed, sofa, rug, or other similar surface.

   This appliance should never be placed near or over a radiator or heat register. This appliance should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.

9. This appliance should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company. For appliance designed to operate from battery power, refer to the operating instructions.

10. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it form the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

11. Do not allow anything to rest on the power cord. Do not locate this appliance where the cord will be abused by persons walking on it.

12. Follow all warnings and instructions marked on the appliance.

13. Do not overload wall outlets and extension cords as this can result in fire or electric shock.

14. Never push objects of any kind into this appliance through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the appliance.

15. Do not attempt to service this appliance yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

16. Unplug this appliance from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    a. When the power cord or plug is damaged or frayed.
    b. If liquid has been spilled into the appliance.
    c. If the appliance has been exposed to rain or water.
    d. If the appliance does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the appliance to normal operation.
    e. If the appliance has been dropped or the cabinet has been damaged.
    f. When the appliance exhibits a distinct change in performance - this indicates a need for service.

17. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

18. Upon completion of any service or repairs to this appliance, ask the service technician to perform routine safety checks to determine that the appliance is in safe operating condition.

Contents

These instructions are for VN-C20U.

Main Features

■ High Picture Quality
The camera unit of VN-C20 employs a 380,000-pixel CCD (1/3") which enables high quality image monitoring.

■ Built-in Web Server
Setting is possible using the Internet Explorer.

■ Support for Multicast
VN-C20 supports multicast, which enables transmission of an image data to multiple computers on the network without lowering the frame rate.

■ Night surveillance
VN-C20 comes with a low luminance feature (Easy Day and Night), which switches automatically to the high sensitivity mode (black-and-white).

■ Analog Video Signal Output
VN-C20 is equipped with an analog video signal output terminal.

■ Motion Detection Feature
This feature enables output of an alarm upon detection of motion in the image within a preset area.
Pre-recorded/post-recorded image files may be sent via FTP using the alarm input.

■ Built-in Viewer
Monitoring via a computer is possible by downloading the built-in viewer onto the computer.

■ HTTP-based API
VN-C20 comes with a HTTP-based API. This feature enables setting and control via the network.

■ Support for PoE (Power over Ethernet)
VN-C20 supports PoE (IEEE802.3af) and enables power supply from a LAN cable.

■ Compatibility with Conventional Peripheral Devices
VN-C20 comes in the same shape as conventional CCTV security cameras, and therefore can be used with other peripheral devices of security cameras such as housings.

■ Realization of Full Frame Rate
Data transmission is possible in VGA size at a rate of 30 fps.

Operating Environment

■ PC Specification Requirements

OS	: Windows XP (Professional or Home Edition) (SP2)
CPU	: Pentium4 1.5 GHz (or higher)
Memory	: 1 GB and above
Hard disk space	: Free space of 20 MB and above
Video card	: 1024 × 768 pixels or higher, True Color (24 or 32 bits)
Web browser	: Internet Explorer V6.0

■ LAN Environment
● 10BASE-T/100BASE-TX network interconnected using an IEEE802.3-compliant switching hub.
● IEEE802.3af-compliant switching hub when PoE is in use.
● IGMPv2-compliant network when multicast is in use.

Notes:
● The above PC specifications are merely guides for smooth use of the applications, and not a guarantee of their operation.
● Depending on the condition of use, applications may not run smoothly even when the user's computer meets the specification requirements.

How to view this manual

■ Symbols used

Caution	: Describes items concerning the operation of this product.
Note	: Describes reference information, such as functions and usage restrictions of this product.
☞	: Indicates the reference page numbers and reference items.

■ About the contents of this manual
● All rights reserved by JVC. Unauthorized duplication or reprinting of this manual, in whole or in part, is strictly prohibited.
● Windows is a registered trademark of Microsoft Corporation in the U.S.
● All other product names used in this manual are trademarks or registered trademarks of their respective companies. Note that marks such as ™, ® and © have been omitted in this manual.
● Illustrated designs, specifications and other contents of this manual are subject to change for improvement without prior notice.

Cautionary Notes

Maintenance and operating environment

● This camera is intended for use indoors.Make sure to use a housing, etc. when using it outdoors.

● Do not store in the following environments.

It might result in malfunctions or failure.
  ● Hot or cold locations beyond the surrounding temperature range of -10 ℃ to 50 ℃.
  ● Locations beyond the allowable operating humidity range of 20 % to 85 %. (condensation is not allowed)
  ● Near equipment that produces strong magnetic fields, such as transformers or motors.
  ● Near equipment that emits radio waves, such as transceivers and mobile phones.
  ● Locations with excessive dust and sand.
  ● Locations that are subject to excessive vibration.
  ● Locations prone to moisture such as window side.
  ● Locations subject to steam or oil, such as kitchens.
  ● Locations that emit radiation, X-rays or corrosive gases.

● Use of this product or cables connected to this product at locations where strong electric waves and magnetic waves are generated (e.g., near radio, TV, transformer, monitor, etc.) may cause noise interferences in the images or changes in the color.

● Do not install at locations that may trap heat.

This product also discharges heat from the surface of the main unit.As such, do not install it at locations that may trap heat, such as near walls.

Handling of Equipment

● Do not stack up the equipment.

The influence of heat or noise between each other may cause malfunction or failure resulting in fire.

● Do not block vents around the equipment.

Inadequate heat ventilation may result in malfunction of this product.Be sure not to block vents around the product.

Saving Energy

● When not in use for a long period, turn off the power of the system to prevent risk and to reduce power consumption.

Maintenance

● Be sure to turn off the power before performing maintenance.

● Wipe using a soft cloth.

Wiping with thinner or benzene may dissolve or tarnish its surface.For dirt that cannot be easily removed, wipe using a neutral detergent diluted with water, followed by wiping with a dry cloth.

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● With the exception of the user being the copyright holder or when permission has been granted concerning duplication, etc. by the copyright holder, permission is required in principle for the duplication, modification, transmission, etc. of copyrighted video/audio. Unauthorized duplication, modification, transmission, etc. of copyrighted material may constitute a copyright infringement and the user may be liable to compensate for any damages. When using copyrighted video/audio, be sure to check thoroughly the license agreement, etc. of the copyrighted material.
When there are rights or rights holders of the duplicating subject, permission may be required for shooting or using (processing) it. Be sure to check thoroughly the licensing conditions.

Others

● Mount the cables carefully and firmly as the cable stopper of the alarm terminal block may come off.

● If a high-intensity object (such as a lamp) is shot, a white smear may appear at the upper and lower ends of this object on the screen.This phenomenon (smear) is characteristic of solid-state image sensors and is not a malfunction.

● Some hub/switch models of products that are equipped with the SNMP feature may include a broadcast/multicast suppression function.Viewing of multicast images on this product may fail if this function is enabled.

● Electricity can be supplied to this product either by using the PoE or connecting to the AC24 V power supply.Make sure to select only one mode of electrical supply. Connecting the power cord and the LAN cable for the PoE at the same time may result in failure or malfunction of the camera. (☞ Page 14)(☞ Page 15)

7

Name and Function of Parts

Front / Top / Side
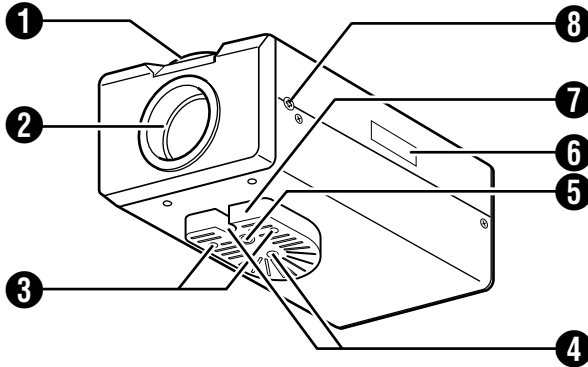
❶ Back Focus adjustment ring

This ring is used for back focus adjustment and switching the lens mount method.
To operate, turn the ❽ back focus fastening screw in the anti-clockwise direction, and turn the screw in the clockwise direction to fasten after operation is complete.
This product is pre-adjusted to a position that is best suited for CS mount.
(☞ Page 19)

❷ Lens mount

This is a mount for mounting the lens.
The mount is compatible with CS mount lens and C mount lens.
(☞ Page 13)

❸ Screws for the bracket(x 2 :M2.6 × 6 mm)

Use screws with a length of 6 mm. Screws beyond the specified length must not be used as doing so may damage the interior.
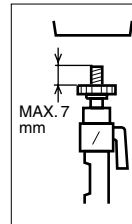
❹ Fall-preventive holes

Mount this camera firmly using these fall-preventive holes to prevent it from falling.

❺ Screw hole(1/4-20UNC)

Use this hole when mounting this camera to a fixer or rotating platform.
Use screws with a length not longer than 7 mm. Screws beyond the specified length must not be used as doing so may damage the interior.
(☞ Page 18)

❻ [MAC address] Indicator

The MAC address is a unique physical address of the product. This address cannot be altered.

❼ Bracket for camera mounting

This bracket is pre-mounted to the bottom surface of the camera. It can also be mounted to the top surface depending on the usage. Mount ❸ Screws for the bracket to the screw hole at the top surface.
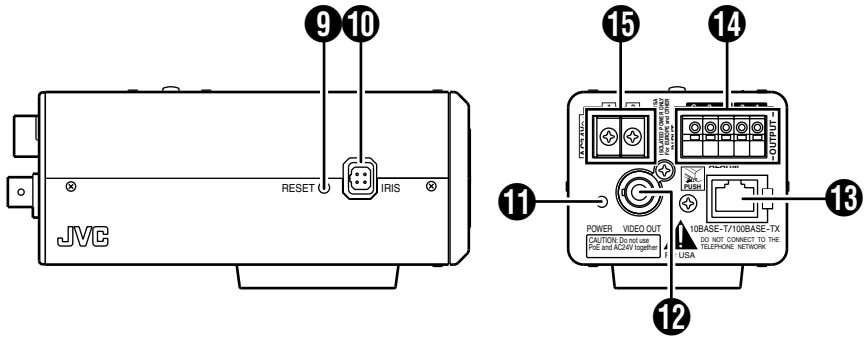
❽ [BF LOCK] Back Focus locking screw

This is the fastening screw of the back focus adjustment unit.
(☞ Page 19)

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Side / Rear

❾ [RESET] Reset button

This is a button for rebooting the camera. Press this button and release within 5 seconds to reboot the camera.
It takes about 1 minute for the camera to reboot.During startup, [RESET] button is disabled.

Caution:

Pressing the [RESET] button for 5 seconds or longer switches the camera to the service verification mode.
Do not press the button for 5 seconds or longer.

❿ [IRIS] Iris terminal

Use this terminal to connect the DC iris lens. (Connection with the video iris lens is not possible.)
(☞ Page 13)

⓫ [POWER] Power indicator

This indicator appears blinking when the power is turned on and lights up when the camera startup is completed. Check the camera or the connected device if the indicator remains blinking when the camera is in use.

⓬ [VIDEO OUT] Coaxial Cable Terminal

This is an output terminal for composite video signals (1 V (p-p), output impedance of 75 Ω). Use this terminal to connect to video monitor, etc.
(☞ Page 16)

⓭ [10BASE-T/100BASE-TX] 10BASE-T/ 100BASE-TX terminal

Use this terminal to connect to the network using a LAN cable.
This product supports PoE (IEEE802.3af) and therefore can be used without a power cable.
(☞ Page 14)(☞ Page 16)

⓮ [ALARM INPUT/OUTPUT] Alarm input/ output terminal

Use this terminal to connect to an external alarm device.
(☞ Page 17)

⓯ [AC24V] AV24V Power terminal

Use this terminal to connect to an AC24 V, 50 Hz/60 Hz power supply.
(☞ Page 15)

Features

Monitoring Via Built-in Viewer

VN-C20 comes with a built-in ActiveX viewer. Monitoring of VN-C20 images using the computer is possible by installing this built-in viewer on the computer. Images that are currently displayed may also be captured in the computerís hard disk..
"Operation of Built-in Viewer" (☞Page 60)
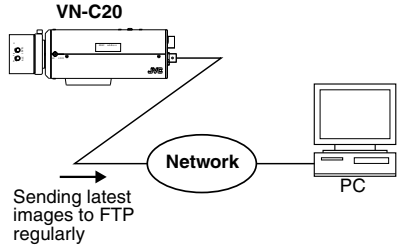
VN-C20

Network

PC
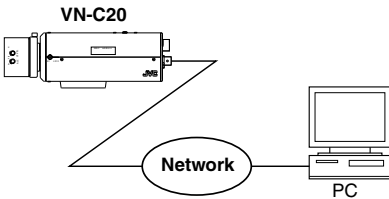
Monitoring Via Multicast

Monitoring using multiple computers is possible via multicast.
"Streaming Page" (☞Page 46)
"Built-in Viewer Settings" (☞Page 66)

VN-C20

IGMP Compliant Network

PC

PC

PC
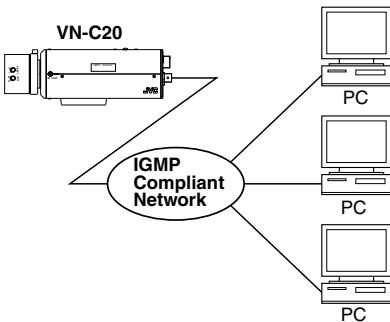
Saving JPEG images to the FTP server at regular intervals

JPEG images may be uploaded to the FTP server at regular intervals.
"FTP" (☞Page 39)

VN-C20

Network

PC

Sending latest images to FTP regularly

Alarm

VN-C20 comes with a motion detection feature and dual alarm input.
During motion detection or alarm input, actions such as mail delivery, message transmission via TCP/UDP, alarm output, or a combination of any of these 2 conditions may be triggered.
Installing an FTP server enables uploading of images before and after the alarm input time (pre-/post-recording) to the server.
"Alarm Page" (☞Page 36)
"Built-in Viewer Settings" (☞Page 66)

VN-C20   Alarm Device

Network

PC

Sending images before and after alarm input to FTP

10
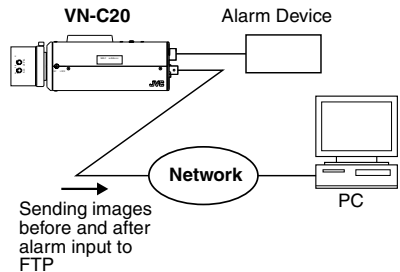
Restrictions on Clients

It is possible to permit or deny image acquisition of designated IP addresses using VN-C20. (☞ Page 48)

Control via customized application software

The following uses are also possible by developing a customized application software that supports the API of VN-C20.
For details, please refer to the "API Guide" in the attached CD-ROM.
● Monitoring via the computer while at the same time recording images to the HDD of PC.
● Recording by changing the frame size/frame rate during alarm occurrence.
● Recording the type and time of alarm occurrence at the computer.

Setup Procedures

Step 1 Connection / Installation(☞ Page 13)

Mount the lens, and connect the power supply cable, LAN cable and alarm.
Next, mount the camera to the ceiling. Remember also to mount the fall-prevention wire. After the camera is mounted, connect the monitor TV to the VIDEO OUT terminal at the rear of the unit, followed by adjusting the camera angle.
(Back focus adjustment ☞ Page 19)

▽

Step 2 Network Settings(☞ Page 21)

Configure the network settings of the computer and this camera.

※ In a system where multiple units of VN-C20 are used, turn on the power of only 1 unit to configure the IP address settings via the Internet Explorer. Upon doing so, turn on the power of the second unit and configure accordingly. Configure the camera settings using the same procedure.

▽

Step 3 Setting Using Internet Explorer(☞ Page 27)

Configure the picture quality and alarm settings using the Internet Explorer.

▽

Step 4 Operation of Built-in Viewer(☞ Page 60)

Monitoring and still image saving operations are possible using the built-in viewer of this camera.

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Mounting the Lens

**1.** **Check the mounting method of the lens to be used before mounting**
● The default method used for this camera is CS mount. To use a C mount lens, loosen the back focus fastening screw using a screwdriver, followed by turning the back focus ring using a finger or pointed object (e.g., screwdriver, etc.) to change the mount method.
● Make use of the values listed in the table below for the dimensions of the lens mount (a) indicated in the following diagram.

Lens	Flange Focus (b)	Dimension (a)
C Mount Lens	17.526 mm	10 mm and below
CS Mount Lens	12.5 mm	5.5 mm and below

● Objects longer than the dimension (a) must not be used as doing so may damage the camera interior or prevent the lens from being properly mounted, hence resulting in malfunctions.

Loosen

Back Focus locking screw (M2.6)
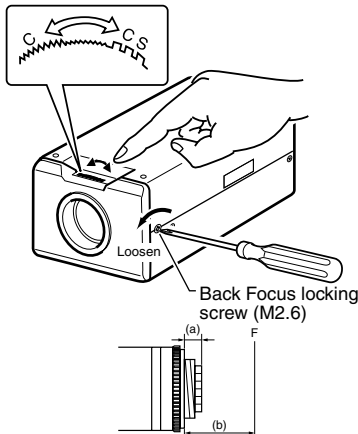
2. **Turn the lens in the clockwise direction and mount the camera firmly**

3. **When using a DC iris lens, pay attention to the pin position before connecting the lens cable**
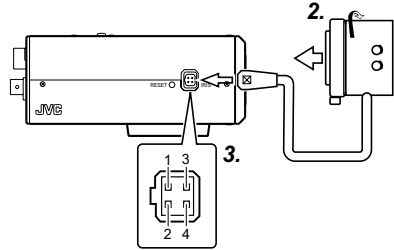
4. **Pin Plug**
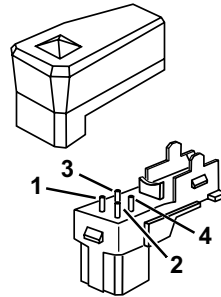
Pin No.	DC Iris Lens (Without Built-in EE Amplifier)
1	Damping ($-$)
2	Damping ($+$)
3	Driving ($+$)
4	Driving ($-$)

13

Power Connection

Electricity can be supplied to this product either by using the PoE or connecting to the AC24 V power supply.

● When electricity is supplied to the camera, the power indicator lights up for a moment, starts blinking during startup, and lights up when startup is complete.

Caution:

● Make sure to select only one mode of electrical supply. Connecting the power cord and the LAN cable for the PoE at the same time may result in failure or malfunction of the camera.

Using the PoE

Connect to a device that supports PoE and supply electricity from the LAN cable.

Power indicator

Connect to PoE-compatible device

Note:

● For details on the connection method and cable type, please refer to "LAN Cable Connection" (☞Page 16).

What is PoE (Power over Ethernet)?
This is a function that enables operation of a LAN equipment without a power cable by supplying power simultaneously with the data using a LAN cable.

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Connecting to the AC24 V power supply

Connect this product to the AC24 V power supply when not using the PoE.

Caution:

- Make sure to select only one mode of electrical supply. Connecting the power cord and the LAN cable for the PoE at the same time may result in failure or malfunction of the camera.
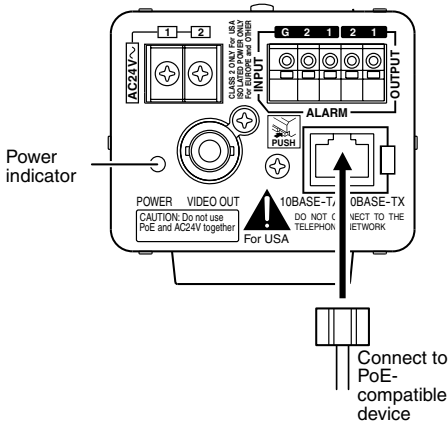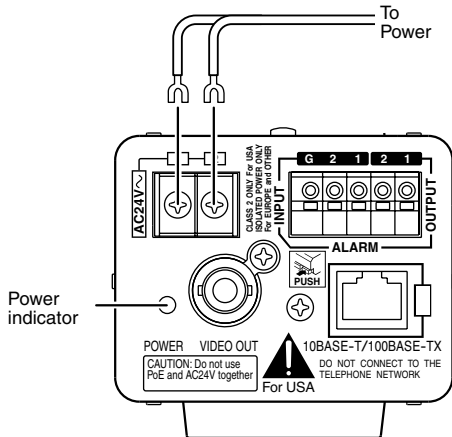- The unit is to be powered by an AC 24 V power supply.
  The AC 24 V power supply should conform to the following:Class 2 only(For USA),Isolated power supply only(For Europe and other).

● Power cord

- To prevent misconnection and detachment of cords, use a lug plate for connecting to the terminal.
- When using 2-core VVF (Vinyl-insulated vinyl-sheath cable), the connection distance is as follows:(Reference value)

Maximum extension (m)	90	240	390
Conductor Diameter (mm)	ø1.0 and above	ø1.6 and above	ø2.0 and above

<table>
<tr><th colspan="3">Warning</th></tr>
</table>

Warning
The rated power of this product is AC24 V 50 Hz/60 Hz. Make sure to use it with the correct voltage. Use an AC24 V supply that is isolated at the primary end. Supplying a power beyond the rated value may result in failures and in the worst scenario, smoking and fire.

Notes:

- In a system where multiple units of VN-C20 are used, turn on the power of only 1 unit to configure the IP address settings via the Internet Explorer. Upon doing so, turn on the power of the second unit and configure accordingly. Configure the camera settings using the same procedure.
- Whenever duplication of IP addresses occurs, disconnect VN-C20 units from the LAN except 1unit. Access to VN-C20 may be disabled for a short period of time (at least 10 minutes), unless you restore the power supply of all network devices under the same LAN environment.

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LAN Cable Connection

Connect the camera to a hub or computer using a LAN cable.
Use the shielded cable for connections.

■ **When connecting to a hub**
Make use of a straight cable.
■ **When connecting to a computer**
Make use of a Cross Over cable.
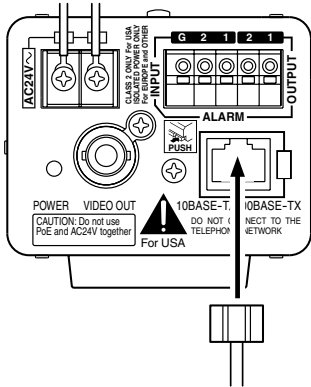
Caution:

● However, cross cables cannot be used with some computer models. When connecting VN-C20 directly to a computer, make sure to check the computer's LAN specifications in advance.

Note:

● Make use of a Category 5 (or higher) cable in the case of 100BASE-TX.

Video Signal Output Terminal Connection

Connect to a video monitor, etc. using a coaxial cable.
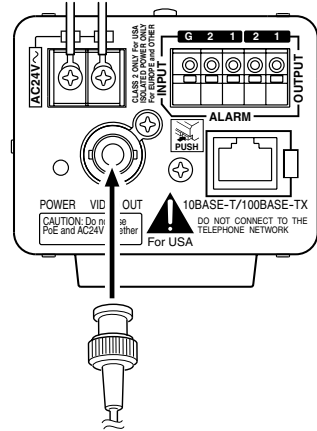
Note:

● The video output signal is NTSC.

● **Video signal cable (coaxial cable)**
● See below for the connection distance.(Reference value)

Maximum extension (m)	200	350	450
Cable to use	RG-59	RG-6	RG-11

Caution:

● A longer cable extension distance causes signals to be attenuated, images to deteriorate and noise to increase.

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Alarm Input/Output Terminal Connection

Connect the alarm input/output terminals with external devices such as a sensor, buzzer, etc. Plug/Unplug the cable by pressing the button as shown in the diagram below.

Cable to use
- Length of 50 m or shorter
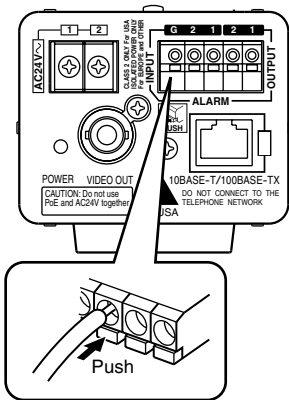- UL1007, UL1015 or equivalent products
- AWG#22 - AWG#18 or equivalent products

Push

Caution:

- Noises from an external source may cause malfunctions even when the cable used in shorter than 50 m. In this case, use a shielded cable or move the cable away from the noise source.

Alarm Input Terminal

Connect this terminal to sensor devices, such as an infrared sensor, door sensor, metal sensor, manual switch, etc.

■ Input requirements
- No-voltage relay NPN open collector input
- Polarity of input detection can be selected using a software
- Make/Break (500 ms and above)
- Circuit current at low level: 0.3 mA
- Applied voltage at high level: 3.3 V

(Alarm Input Equivalent Circuit)
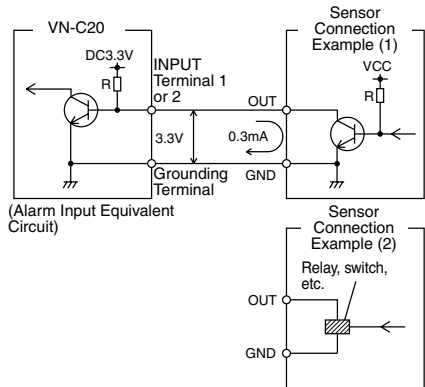
Alarm Output Terminal

Connect this terminal to annunciating devices, such as annunciators, indicators, lights, buzzers, etc.

■ Output requirements
- Equivalent to NPN open collector output (Set the output put logic via the Internet Explorer)
- Allowable applied voltage: DC12 V and below
- Allowable inflow current: 50 mA
- Momentary (100 ms to 5000 ms) output (Set time via the Internet Explorer) (☞ Page 38)

(Alarm Output Equivalent Circuit)
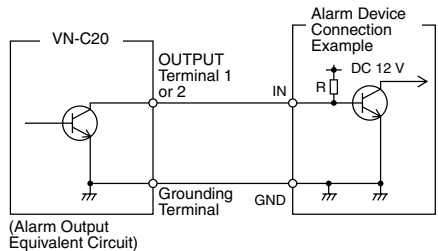
Caution:

- Connect the G terminal of this camera to the GND terminal of the annunciating device.

Mounting the Camera

Use the screw hole on the camera mounting bracket when mounting this camera to a fixer or rotating platform.

Camera mounting screw hole

Screws for the bracket (x 2: M2.6 x 6 mm)

Fall-preventive holes

Bracket for camera mounting

Fall-prevention wire — M2.6 x 4 mm

4 mm
2 mm

Caution:

● When mounting the camera, use screws with a length of 7 mm or shorter from the mounting surface. Screws beyond the specified length must not be used as doing so may damage the interior.

MAX. 7 mm

Caution:

● The camera mounting bracket is mounted on the bottom surface of the camera by default. To mount it to the top surface, do so by removing the 2 fastening screws from the camera mounting bracket.
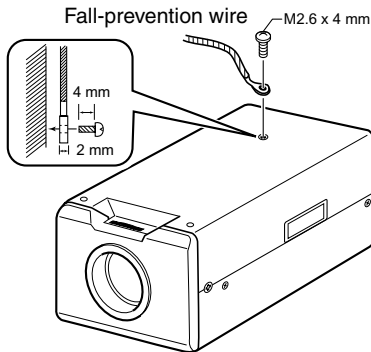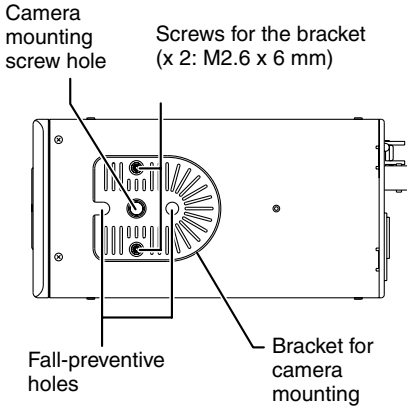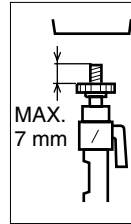
Warning
● Special attention is required when mounting the camera to a wall or ceiling. Mounting operations should not be carried out by the users but by professional contractors. Failure to do so may cause the camera to fall and result in injuries and accidents. ● When mounting the camera to a fixer or rotating platform, ensure that the camera is firmly mounted by using the rotation-prevention holes to prevent it from falling. ● To prevent the camera from falling, ensure that it is connected to a firm place (ceiling slab or channel) using a fall-prevention wire. ● Also pay careful attention to the length, strength, wiring and material (insulation quality) of the fall-prevention wire to be used. ● Mount the fall-prevention wire using the black screw on the top surface of the camera unit. ● Designated screw for fastening of fall-prevention wire (M2.6 $\times$ 4 mm): Screws beyond the specified length must not be used as doing so may damage the interior.

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Back Focus Adjustment

The CS mount is adjusted to the widest point of the applicable range by default. When using the zoom lens or C mount lens, or the lens is out of focus, readjustment is required using the focus ring.

● When required, follow the method below to adjust the back focus.
● In order to adjust the back focus accurately, do so according to the steps below upon opening the lens iris using the iris adjustment and ND filter.
  (ND filter is a filter that is used to evenly reduce the light entering the lens at all wavelengths.)
● Connect a monitor TV to the [VIDEO OUT] at the rear of the unit, followed by adjusting as follows.

Back Focus adjustment ring

Tighten

Loosen

Back Focus locking screw (M2.6)
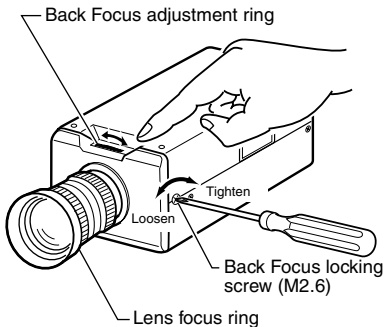
Lens focus ring

Fixed focus lens

Adjust when the lens cannot be brought into focus using the focus ring.

1. Loosen the Back Focus locking screw in the anti-clockwise direction using a Phillips screwdriver

2. Shoot the object or a fine pattern that is farther away than the object

3. Set the focus ring of the lens to 1∞

4. Turn the Back Focus adjustment ring to optimize the focus

5. Turn the Back Focus locking screw in the clockwise direction and ensure that it is securely fastened.

Zoom lens

Perform the zooming operation (Tele - Wide) and adjust accordingly if it is out of focus.

1. Loosen the Back Focus locking screw in the anti-clockwise direction using a screwdriver

2. Shoot the object or a fine pattern that is farther away than the object

3. Set the zoom lens to Tele and turn the lens focus ring to adjust the focus

4. Set the zoom lens to Wide and turn the Back Focus adjustment ring to adjust the focus

5. Repeat Steps 3. and 4. for 2 to 3 times

6. Turn the Back Focus locking screw in the clockwise direction and ensure that it is securely fastened.

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Network Requirements

- Ensure that there is sufficient network bandwidth for the data volume to be sent out by VN-C20.
- Data volume to be sent by VN-C20 varies with the settings and number of distributions.
- The maximum bit rate from VN-C20 is about 9 Mbps.

Estimation of total bit rate

The JPEG file size per frame varies with the encoding settings as well as input video signals. The following table may be used as a reference. When VFS is selected, the quantization table during JPEG encoding will be maintained and the file size will increase/decrease according to the input signals. When AFS is selected, encoding will be performed such that the target file size is the average size of multiple JPEG images.

Picture Quality Control Method		VGA File Size	QVGA File Size
VFS (Variable File Size)	1 (High)	80 KB	27 KB
	2	60 KB	20 KB
	3	40 KB	13 KB
	4 (Medium)	30 KB	10 KB
	5	25 KB	8 KB
	6	20 KB	7 KB
	7 (Low)	15 KB	5 KB
AFS (Average File Size)		Selection may be made from the range between 10 to 100 KB	Selection may be made from the range between 3 to 33 KB

VN-C20 accepts requests from up to a maximum of 5 clients. In addition, it also allows transmission of 1 multicast stream. The total frame rate refers to the sum of these frame rates.
For example, when 10 fps is requested by 2 clients, and in addition multicast is transmitted at a rate of 10 fps, the total frame rate will be:

10 + 10 + 10 = 30 fps

If the JPEG file size per frame is 30 KB, then the total bit rate will be:

30 KB $\times$ 30 fps = 900 KB/s = Approx. 7.2 Mbps

Insufficient network bandwidth

When there is insufficient bandwidth, the number of JPEG frames (frame rate) that the client can acquire will decrease.

Network Delay

When the client acquires JPEG via TCP, VN-C20 will send out data while checking the ACK from the client at the same time. For networks with considerable delay, data cannot be sent out until ACK is received, and therefore the frame rate will drop.
Network delay due to a drop in frame rate can be eliminated by receiving data via multicast.

Network Jitter

When there is considerable network jitter, delay time may be prolonged and the image frame rate may drop.

Packet Loss

When acquiring images from VN-C20 via TCP, packet loss may be recovered by resending from TCP. When there is considerable delay during resending, however, missing data may occur and the image frame rate may drop.
When packet loss occurs during multicast sending from VN-C20, the image frame rate may drop.

List of protocols and port numbers used by VN-C20

VN-C20 uses the protocols and port numbers listed below. Ensure that these ports are allowed through the firewall when a firewall is to be installed.

Protocol / Port No.	Purpose of Use
TCP/80	JPEG acquisition, Web Settings page, API
TCP/20, 21	FTP
TCP/25	Mail delivery
TCP/User Setting No.	Alarm sending
UDP/User Setting No.	Alarm sending
UDP/User Setting No.	Multicast sending

IP Address Settings

Setting IP address with the default VN-C20 settings

There are 2 methods to set the IP address when VN-C20 is in its default settings.

(A) Assigning an IP address to VN-C20 from the DHCP server

(B) Assigning a static IP address to VN-C20

■ (A) Assigning an IP address from the DHCP server

● VN-C20 is set to"DHCP Enable" (the DHCP client function is ON) by default. To assign an IP address from DHCP server, connect VN-C20 to LAN with DHCP server, and turn on VN-C20. Allowing the DHCP server to assign the same IP address to VN-C20 every time eases access toVN-C20.

● For details on IP addresses assigned to VN-C20, please consult your network administrator.

● You can look up the IP address of VN-C20 using the search tool in the attached CD-ROM. For details, please refer to the "Readme" file in the attached CD-ROM.

Caution:
● Set the DHCP server such that the IP address assigned to MAC address of VN-C20 from the DHCP server is the same each time.Connection may fail if the above setting is not performed.

■ (B) Assigning a static IP address

● System configuration required for setting IP address

VN-C20 is set to "DHCP Enable"(the DHCP client function is ON) by default. Upon starting up in LAN without DHCP server, VN-C20 starts running with the following IP address after time out of DHCP.

IP address   : 192.168.0.2
Subnet mask   : 255.255.255.0
Default gateway : None

Note:
● To set a static IP address for VN-C20, connect VN-C20, switching hub and computer for setting using a straight LAN cable of Category 5 and above.

● Set up the computer for setting the IP address.

● Minimum computer specifications for setting

OS   : Windows XP (Professional or Home Edition) (SP2)

Web browser : Internet Explorer V6.0

Caution:
● When setting the IP address for VN-C20, do so by using a network that is made up only of VN-C20, the computer for setting and the switching hub.
● Using a hub connected to other network devices can cause problems.

IP Address Settings (continued)

● **IP Address setting at the computer**

Set the computer to an IP address that enables communication with VN-C20.

1. Click [Start]
   ● Select in the order of [Control Panel] − [Network Connections] − [Local Area].

2. The computer with which Internet Explorer is launched automatically selects the connected network
   ● Right-click and select [Properties].
   ● Check to ensure that the [Client for Microsoft Networks] and [Internet Protocol(TCP/IP)] check boxes are selected.

3. Select [Internet Protocol(TCP/IP)] and click [Properties].

4. Set the IP address
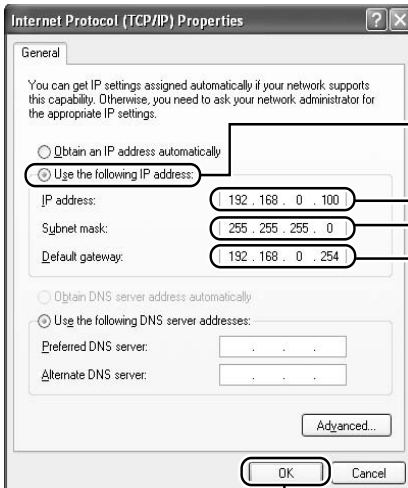
① Select [Use the following IP sddress].

② Set the [IP address]. (For example, use 192.168.0.100 when VN-C20 is in its default settings)

Note:
Make sure that you take note of the original IP address before altering.

Caution:
When setting, ensure that a duplicate IP address is not used within the same network environment.

③ Set [Subnet mask] to a value that is appropriate for the setting operation. Clarify with the network administrator if you have any queries.
(Use 255.255.255.0 when the camera is in its default settings)

④ When a [Default gateway] is present, make use of the IP address (e.g., 192.168.0.254),
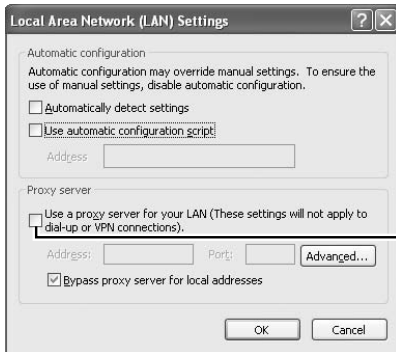
⑤ Click [OK].

5. Click [OK] on the [RESERVED] screen

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● **Changing the IP address using the Internet Explorer**

1. **Launch the Internet Explorer on the computer**

2. **When proxy settings are enabled in the Internet Explorer, follow the steps below to disable the proxy of the Internet Explorer**
● Select in the order of [Tools]–[Internet Options]–[Connections]–[LAN Setting], followed by deselecting the check for [Use a proxy server for your LAN] in [Proxy Server] of the [Local Area Network(LAN)Settings] window.

Deselect the check

3. **If the active script of the Internet Explorer is disabled, follow the steps below to enable it**
● Select [Trusted sites] under [Tools]–[Internet Options]–[Security]. Upon doing so, the [Sites...] button directly below becomes active. Click on this button and deselect the check in the displayed window. Next, add the following web site to the zone.

http://192.168.0.2

● Next, select [Trusted sites] under [Tools]–[Internet Options]–[Security], and press the [Custom Level] button. Select [Enable] under [Scripting]–[Alarm] of the [Security Settings] window that has been opened.

Select [Enable]

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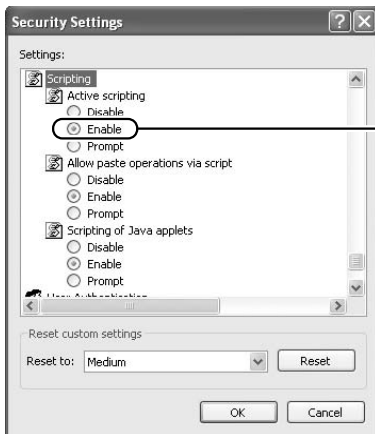
IP Address Settings (continued)

● **Changing the IP address using the Internet Explorer (continued)**
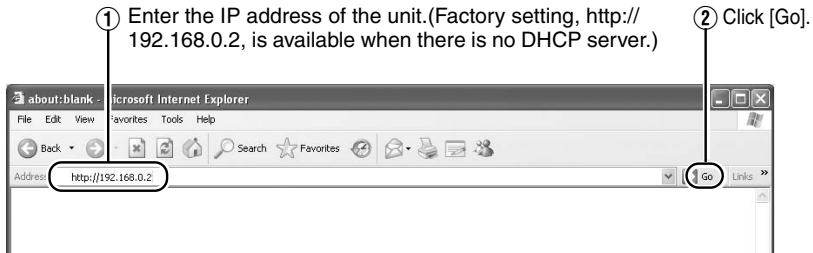
4. **Launch the Internet Explorer**

① Enter the IP address of the unit.(Factory setting, http://192.168.0.2, is available when there is no DHCP server.) ② Click [Go].

Notes:
● If the proxy server settings on access to the Internet via the Internet Explorer is enabled, you may not be able to specify the IP address directly. In this case, change the proxy settings of the Internet Explorer.
● After the [Security Settings] screen appears, press the [OK] button to proceed.

5. **Enter the user name and password (login as an administrator)**

① Enter the user name.
This is set to "admin" by default.

② Enter the password.
This is set to "vn-c20" by default.
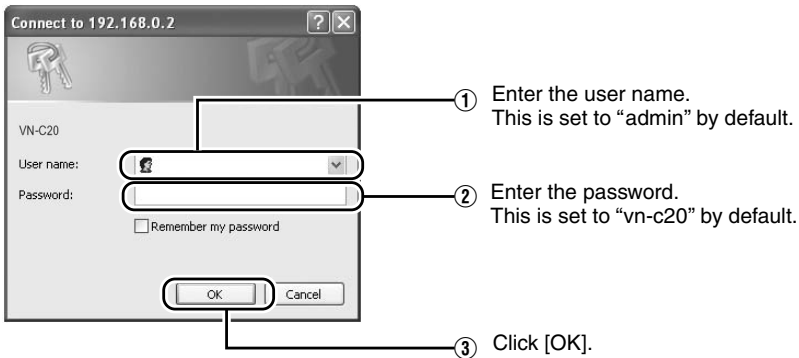
③ Click [OK].

Note:
● After the [Security Settings] screen appears, press the [Yes] button to proceed.

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6. The top page of VN-C20 appears

Click on [Network], followed by [Basic] on the next submenu.

7. The [Basic] page with the IP address settings appears
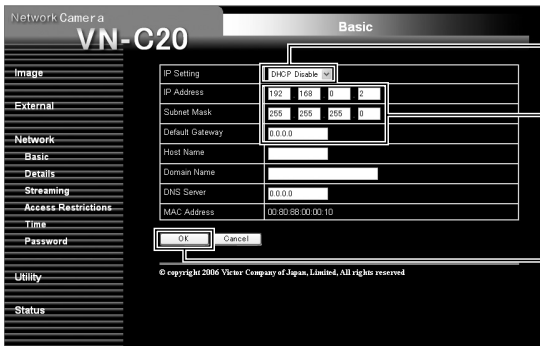
① Set the [IP Seting] item to [DHCP Disable].

② Enter the values you wish to specify in [IP Address], [Subnet Mask] and [Default Gateway].

③ Click [OK].

A confirmation screen appears. Press the [OK] button. The system restarts using the new IP address of VN-C20. It takes about 1 minute for the camera to reboot.

Note:

● Access from this computer may fail when the IP address of VN-C20 is changed. To enable access to VN-C20 from the same computer, alter the IP address at the computer accordingly.

IP Address Settings (continued)

When the IP address of VN-C20 is known

When the IP address of VN-C20 is known, it can be changed by accessing the built-in web page of the Internet Explorer on the computer.
See "Setting Using Internet Explorer" (☞Page 27).

When the IP address of VN-C20 is unknown

Changing of settings by accessing via a computer is not possible when the IP address of VN-C20 is unknown.
In this case, you can obtain information on the IP address using the following method
● The attached CD-ROM comes with a search tool. Using this tool enables you to look up information within the LAN.
  For details on the search tool, please refer to the "Readme" file in the attached CD-ROM.

Setup

Setting Up the Internet Explorer

1. **Launch the Internet Explorer on the computer**

2. **When proxy settings are enabled in the Internet Explorer, follow the steps below to disable the proxy of the Internet Explorer**
   ● Select in the order of [Tools]–[Internet Options]–[Connections]–[LAN Setting], followed by deselecting the check for [Use a proxy server for your LAN] in [Proxy Server] of the [Local Area Network(LAN)Settings] window.
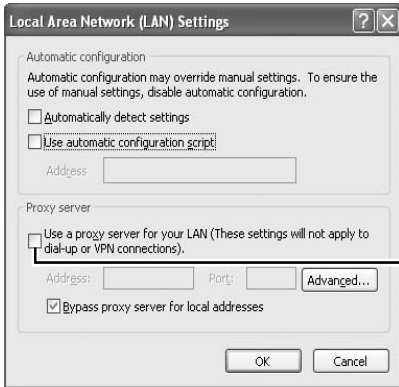
 Deselect the check

3. **If Active scripting of the Internet Explorer is disabled, follow the steps below to enable it**
   ● Click [Trusted sites] under [Tools]–[Internet Options]–[Security]. Click on the [Sites...] button directly below, followed by deselecting the check in the displayed window. Add the following web site to the zone.

   http://192.168.0.2

   ● Click [Trusted sites] under [Tools]–[Internet Options]–[Security]. Select the [Custom Level] button and open the [Security Settings] window. From the opened window, set all the items in [Active X controls and piug-ins] to [Enable].

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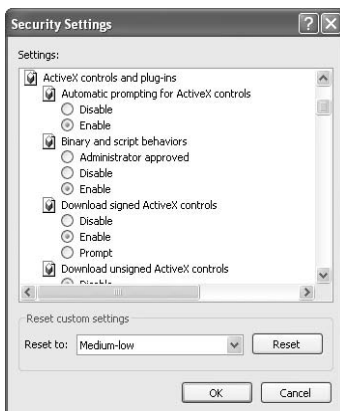
Setup (continued)

Setting Up the Internet Explorer (continued)

4. Disabling pop-up block

Connection of VN-C20 cannot be established when pop-up block in the Internet Explorer is enabled.

Follow the steps below to disable the pop-up block.

- [Selecting [Tools]–[Pop-up Blocker]–[Turn Off Pop-up Blocker] permits all sites.
- To allow only specific sites such as VN-C20, select [Tools]–[Pop-up Blocker]–[Turn On Pop-up Blocker], followed by selecting [Tools]–[Pop-up Blocker]–[Pop-up Blocker Settings] that becomes active, and open the [Pop-up Blocker Settings] window.
  In the opened window, add the address of VN-C20 as an allowed web site address.

5. When plug-in tools such as the Yahoo or Google toolbar are included in the Internet Explorer, disable the pop-up block function of these plug-in tools as well

Enter user name and password

User name and password entry will be required at the beginning.
There are 3 access authorization levels to VN-C20. Factory settings of the unit are as follows.

User Name	Default Password	Description
admin	vn-c20	All operations and setting changes are allowed.
operator	vn-c20	Change of settings other than those related to network and maintenance are allowed
user	vn-c20	Viewing of images is allowed

● **Pages that users have access to**

Restrictions are placed on the pages that users have access to. In addition, links on the web pages are also displayed according to the access authority of the user.

● **admin**

Image	JPEG View Camera Encoding
External	Alarm Alarm Environment Motion Detection
Network	Basic Details Streaming Access Restrictions Time Password
Utility	Maintenance Miscellaneous
Status	Operation Settings

● **operator**

Image	JPEG View Camera Encoding
External	Alarm Alarm Environment Motion Detection
Utility	Miscellaneous
Status	Operation Settings

● **user**

Image	JPEG View
Utility	Miscellaneous

Notes:
● The [Security Settings] screen appears before the top page is displayed. Press the [Yes] button to proceed.
  If you do not want this warning screen to be displayed, change the Internet Explorer settings as follows.
  ● Open [Tools]–[Internet Options]–[Security] and select the [Trusted sites] icon.
  ● Next, press the [Custom Level] button, followed by selecting [Enable] under [Miscellaneous]–[Display mixed content].

Caution:
● Do not stop the power or reset VN-C20 just after change of settings. The change can not be saved, and VN-C20 can be initialized.

Setting

JPEG View Page

This top page is displayed upon access using any of the user name "admin", "operator" or "user".

The current image is displayed as a still image.
Links to each page are found at the left end. The links displayed vary according to the user name.
For example, in the case of "admin" or "operator", 3 links, namely [JPEG View], [Camera] and [Encoding] will be displayed upon clicking [Image]. In the case of "user", only [JPEG View] is displayed.

(The diagram below shows the [JPEG View] page upon access using "admin" or "operator". The number of links decreases during access using [Viewer...], and the "user" button is not displayed.)

Links to each page

① **Reload**	Press this button to refresh the JPEG image displayed. Clicking [JPEG View] or re-entering the Internet Explorer address will only display the page that is temporarily stored in the Internet Explorer, and JPEG images may not be refreshed in this case. To refresh JPEG images using the above operations, change the Internet Explorer settings as follows. ● Open [Tools]–[Internet Options], click the [Settings] button under Temporary Internet Files, and select "Everry visit to the page". **Caution:** ——————————————————————————————— ● When a firewall is installed between VN-C20 and the computer, JPEG images may not be displayed on the JPEG View page of the web browser. For such systems, check the JPEG images using the built-in viewer. The built-in viewer is able to cross the firewall (port translation).
② **Viewer...**	This is displayed upon access to the [JPEG View] page using "admin" or "operator". Click this button to display the "Security Settings" screen, etc. Press the [OK] button to launch the built-in viewer. Do not click on the [Viewer...] button over and over again while leaving the warning screen unattended. When this button is pressed for the first time on the operating PC, the built-in viewer will be installed on the computer. **Note:** ——————————————————————————————— ● Refer to "Operation of Built-in Viewer" (☞Page 60) on procedures to install the built-in viewer on the computer and ways of using the built-in viewer.

Setting (continued)

Camera Page

This page is for setting the camera's parameters.

This page can be used during access using "admin" or "operator".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.
● To restore the setting of this page to the factory setting, press [Initialize] button.

① **Camera ID**		Character strings entered here will be written to the JPEG comment segment (item name: camera). Refer to the API Guide on the file formats of JPEG.
② **DC Iris Level**		For adjusting the brightness when a DC iris lens is in use. Decreasing the value closes the iris (aperture) and darkens the image. **[Setting values: -15 to 15]**
③ **AGC**		For setting AGC (Auto Gain Control). Setting to "On" enables automatic gain adjustment according to the brightness.
④ **Easy Day and Night**		For setting the Easy Day and Night function. This feature is configurable only when the [AGC] item is set to "On". When this is set to "On", the image turns black-and-white when the luminance level is low.
⑤ **Shutter Speed**		For setting the shutter speed. This can be set to "auto" only when the [AGC] item is set to "On". Set to "auto" only when using a manual iris lens.Setting to "auto" while using a DC iris lens may cause flickers. **[Setting values: auto,1/60,1/100,1/250,1/500,1/1000,1/2000,1/4000,1/10000]**
⑥ **Back Light Compensation**		For turning On/Off the Back Light Compensation feature. Set this to "On" when there is a bright light source at the background of the object. This can be set to "On" only when the [AGC] item is set to "On" and the [Shutter Speed] item to "auto".
⑦ **White Balance**		For adjusting the white balance. Setting this to "Auto" enables automatic white balance adjustment, which is the color standard.
	R-Gain	For adjusting the red color when white balance is set to "Manual". **[Setting range: 0 to 100]**
	B-Gain	For adjusting the blue color when white balance is set to "Manual". **[Setting range: 0 to 100]**
⑧ **Pedestal**		For adjusting the black level. **[Setting values: 0 to 1]**
⑨ **Enhance**		For adjusting the edge enhancement. **[Setting values: -3 to 3]**
⑩ **Chroma**		For adjusting color level. **[Setting range: -5 to 5]**

Setting (continued)

Encoding Page

This page is for setting JPEG encoding parameters.

This page can be used during access using "admin" or "operator".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.
● When settings on this page is altered during playback using the built-in viewer, reboot the viewer.

① **Frame Size**	Select either VGA (640 × 480) or QVGA (320 × 240) as the frame size.
② **Quality/Size**	For specifying the rate control mode and target file size. When "VFS1" to "VFS7" is selected, the quantization table during JPEG encoding will be maintained and the file size will increase/decrease according to the input signals. Stipulated values will be displayed for the target file size. When recording JPEG data to a recorder with limited capacity, pay attention when making a selection for this item as the maximum recording time varies accordingly when the file size increases/decreases. In this case, encoding is performed such that the average size of multiple JPEG images becomes the target file size when "AFS" is selected.(When "AFS" is selected, input of target file size will be enabled.)
③ **FPS**	For specifying the number of frames to encode per second. VN-C20 is limited in its processing capacity and the specified frame rate may not be realized depending on the settings of [Frame Size] and [Quality/Size]. In particular, when the specified target file size is large, the upper limit of the frame rate drops. An example of settings for which a total frame rate of 30 fps can be realized is as follows.
	Frame Size : VGA
	Picture quality : VFS4
	Frame Rate : 30 fps
	(The maximum bit rate from VN-C20 is about 9 Mbps.)
④ **Fine**	Each video frame is made up of 2 fields. When Fine is set to "On", the 2 fields can be used as is. When Fine is set to "Off", the frame is formed using only one of the fields, hence preventing the image from blurring even when the object is moving. This feature is enabled when "VGA" is selected for the ①[Frame Size] item.
⑤ **Turn Over**	Flags specified here will be written to the JPEG comment segment. Switching this item does not change the upside down. Refer to the "API Guide" on the file formats of JPEG.

Setting (continued)

Alarm Page

This page is for setting actions when there is an alarm.
Up to 5 actions (No. 01 to No. 05) may be set.

This page can be used during access using "admin" or "operator".
● Press the [OK] button to enable the new settings upon changing.Only items that are valid under the selected action will be saved.When Disable is selected for the action, all setting items will be restored to their default values.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.

① **Action**	For specifying the type of action.	
	Disable	: Zero activation.
	Mail	: Send via e-mail. Specify the recipient's mail address. The title of the mail will appear as [Alarm from VN-C20] and the sender as [Camera ID]. Enter the message to send in [Mail Text]. Input of up to 127 alphanumeric characters is allowed. To attach the latest image to the mail, set image attachment to "On".
	FTP	: Send pre-/post-recorded JPEG files via FTP.See Page for details on pre-/post-recording and FTP server settings. (☞ Page 39) The maximum transmission rate of FTP is 1 Mbps.If a new FTP trigger occurs during post-recording, the recorded portion is treated as pre-recording and a new post-recording starts.During FTP transmission after finishing the post-recording, a new post-recording starts if a new FTP trigger occurs.
	TCP	: Send the character string entered in the [TCP/UDP Date] field to the destinations specified in [TCP/UDP IP Address] and [TCP/UDP Port Number] via TCP.
	UDP	: Send the character string entered in the [TCP/UDP Date] field to the destinations specified in [TCP/UDP IP Address] and [TCP/UDP Port Number] via UDP.
	TCP/UDP Date	: Input of up to 127 alphanumeric characters.
	Output 1 Make	: Change Alarm Output 1 to Make.
	Output 2 Make	: Change Alarm Output 2 to Make.
	Output 1 Break	: Change Alarm Output 1 to Break.
	Output 2 Break	: Change Alarm Output 2 to Break. Set the alarm output time in the [Alarm Output Duration] field.
② **1st Trigger**	Specifies the first trigger to be activated. Either alarm input (make), alarm input (break) or motion detection can be selected.	
	Note: ● When the second trigger is turned off, only the first trigger will be activated. ● When motion detection is selected as the first trigger, selection of "Max.Interval" and "2nd Trigger" will be disabled.	
③ **Max.Interval**	Valid only when first and second triggers have been specified. It dictates (determines) the maximum interval between the first and second triggers. Activation will take place only if the interval between first and second triggers is less than the maximum interval.	
④ **2nd Trigger**	Specifies the second trigger to be activated. Either alarm input (make) or alarm input (break) can be selected. Unlike the first trigger, motion detection is not available as a choice.	

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Setting (continued)

Alarm Environment Page

This page is for setting alarm-related environments.

This page can be used during access using "admin" or "operator".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid value to the current value.

① **Mail**	For setting the mail environment when [Mail] is specified as an action of the Alarm page. [SMTP] and [POP] can be used. Configure only the SMTP settings in usual circumstances. Configure the POP settings as well if [POP before SMTP] is enabled. In addition, if FQDN is set for [SMTP Server], etc., configure also the DNS server settings on the [Basic] page.(☞ Page 44)
	Note: **What is FQDN (Fully Qualified Domain Name)?** This is a fully qualified domain name that indicates a notation method of describing the entire host or domain name on the TCP/IP network without abbreviating. For example, if the host name is www and the domain name is victor.co.jp, then this will be denoted as "www.victor.co.jp" in FQDN.
② **FTP**	For setting the FTP environment when [FTP] is specified as an action of the Alarm page.This is common with the FTP environment when using the regular FTP within this page. When [Directory] is left blank, FTP transfer will be performed to the home directory of the FTP server. To enable FTP transfer to a directory below the home directory, set the directory name in [Directory]. Delimit the directory using "/". Example: subdir1/subdir2 Destination directory of FTP transfer will be dependent on the FTP server if "/" is added at the beginning. Setting [Periodic FTP] to "On" enables transfer of the latest images to the FTP server at regular intervals. Specify the interval in units of seconds under [Periodic FTP Interval]. Select a type from the two types of regular FTP file names. When Automatic is selected, images are generated from the year, month, day, hour, minute, second, and number. Example: 20051114161032-001-2.jpg When Custom is selected, images are generated from the user-defined character string, year, month, day, hour, minute, second, and number. Example: Camera1_20051114161032001.jpg [Frame Rate] is constrained by the frame rate as set on the [Encoding] page. (☞ Page 34) The actual frame rate used for transmission will be the upper limit on the [Encoding] page even if a value that is larger than the frame rate in the [Encoding] page is specified. The upper limits of [Before Trigger] and [After Trigger] are determined by settings on the [Encoding] page. In addition, [Frame Rate] is in a trade-off relationship with [Before Trigger] and [After Trigger]. In the case of a combination such that the input value cannot be realized, adjustments will be automatically made on the item that is not specified. The name of the file to be transmitted via FTP is made up of the action number, year, month, day, hour, minute, second, number and trigger flag. Example: 01-20050711152904-001-0.jpg The first 2 digits are the action number, and the following 14 digits denote the year, month, day, hour, minute and second. The 3 digits after the first hyphen is the number of the series of JPEG files to be sent via that FTP. The first file is numbered "000". The last digit denotes the trigger flag. This is displayed as "1" only for the JPEG file during a trigger input, and as "0" if otherwise.

Setting (continued)

Alarm Environment Page (continued)

③ Alarm Output		For setting the alarm output.
	Output Duration	For setting the output time of [Manual Output].
	Manual Output	For operating alarm output manually. The current output status appears on the right. When [Output Duration] is set to "0", pressing the [Make] buttons switches the alarm to Make output, while pressing the [Break] buttons switches the alarm to Break output. When [Output Duration] is set to a value other than "0", pressing the [Make] buttons switches the alarm to Make output only during the duration of the output, upon which it switches to Break output. When the output duration is set to a value other than "0", pressing the [Break] buttons switches the alarm to Break output only during the duration of the output, upon which it switches to Make output.

Motion Detection Page

Page for setting motion detection.

- The area valid for motion detection is displayed in blue.
- The area where motion is detected is displayed in red.
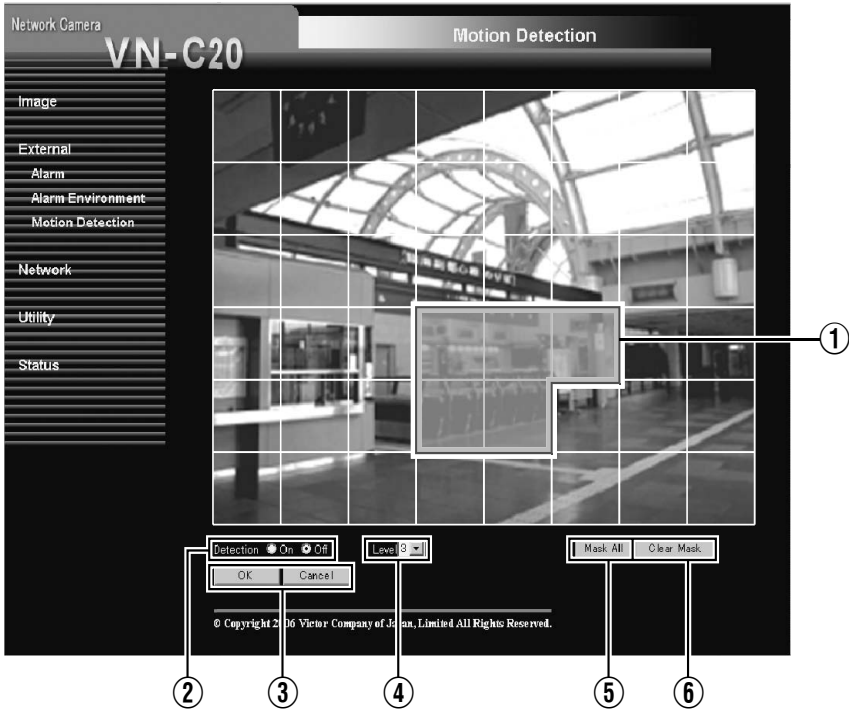
Setting (continued)

Motion Detection Page (continued)

① **Display Screen**	The screen is divided into blocks of 8 × 6. Use this to set whether to mask each block. All blocks are masked in the default setting. The block turns blue when it is clicked, indicating that it is unmasked. Click again to return to the masked state. Press the [OK] button to enable this setting. Use the [Mask All] button to mask all blocks. Use the [Clear Mask] button to unmask all blocks.	
② **Detection**	For setting motion detection to On/Off. Press the [OK] button to enable this setting.	
③ **OK/Cancel**	To enable the new parameters, press the [OK] button. Press the [Cancel] button to cancel the change.	
④ **Level**	For setting the sensitivity of motion detection. When the number is large, the detection sensitivity rises and hence it is sensitive. Press the [OK] button to enable this setting.	
⑤ **Mask All**	Masks all blocks and enables the current motion detection and detection sensitivity settings. Press the [OK] button to enable this setting.	
⑥ **Clear Mask**	Unmasks all blocks and enables the current motion detection and detection sensitivity settings. Press the [OK] button to enable this setting.	

Notes:
- The area display position serves as a reference. Ensure to perform operation check.
- The screen is divided into 48 (8 × 6) blocks. Set the angle of view such that multiple blocks are used to set the size of the object for motion detection.

Cautions:
- Flicker of fluorescent lights may cause malfunction during motion detection.
- Changes in brightness due to lighting may be detected as motion.
- The motion detection feature is not intended to prevent theft or fire. This feature may not function properly depending on the conditions of the object and settings.
  Our company shall not be liable for any accident or damage that occurs.

Basic Page

This page is for performing basic setting related to the network.

This page can be used during access using "admin".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.
● When settings of the Basic page is changed, all services that are currently running will end immediately. For example, when changes are made to the Basic page during JPEG distribution, distribution will be discontinued and TCP will be disconnected.

Setting (continued)

Basic Page (continued)

① **IP Seting**	For setting the DHCP client function. Ensure to connect VN-C20 to a network environment with a DHCP server when enabling the DHCP settings. If the DHCP server does not exist when DHCP is set to "Enable", VN-C20 will start running with the 192.168.0.2 IP address and 255.255.0 subnet mask in about 2 minutes after startup. Refer to [IP Address Settings] (☞ Page 21) for the IP address.	
② **IP Address**	For setting the IP address of VN-C20.	
③ **Subnet Mask**	For setting the subnet mask of VN-C20.	
④ **Default Gateway**	For setting the default gateway of VN-C20. Set as 0.0.0.0 when a default gateway is not set.	
⑤ **Host Name**	For setting the host name of VN-C20. Specify name using alphanumeric characters, hyphen (-) or period (.). Underscores (_) cannot be used.	
⑥ **Domain Name**	For setting the domain name. Specify name using alphanumeric characters, hyphen (-) or period (.). Underscores (_) cannot be used.	
⑦ **DNS Server**	For setting the address of the DNS server.	
⑧ **MAC Address**	The MAC address of VN-C20 is displayed in a hexadecimal number.	

Details Page

This page is for performing detailed network setting.

This page can be used during access using "admin".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.

① **TOS(DS field)**	For setting the TOS value of IP packets in which JPEG is stored. The upper 6 bits out of 8 bits in TOS value belong to DSCP. This upper 6 bits can be set.The lower 2 bits are "0". For example, when setting to "255", the lower 2 bits are converted to "0", then to "252". TOS values are used in networks that support QoS.Network By setting QoS to the switch, routing can be done using packet with bigger TOS value as first priority.
② **TTL Unicast**	For setting the TTL value of JPEG packets that are to be sent via TCP.
③ **TTL Multicast**	For setting the TTL value of JPEG packets that are to be sent via multicast.
④ **MTU**	For setting the maximum packet size for storing JPEG. **[Setting range: 1280 to 1500]**
⑤ **Negotiation**	For setting the negotiation of the network. When a value other than "Auto" is selected, do not set the network device to be connected to "Auto". Ensure that it is set to the same value as VN-C20.

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Setting (continued)

Streaming Page

This page is for setting manual multicast transmission.

This page can be used during access using "admin".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.

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① **Control**	For starting or stopping streaming. Parameters that are set on the Streaming page will be saved when transmission is started upon pressing the [Start] button.
② **Destination Address**	For specifying the destination address. Specify the multicast address. When other devices that make use of multicast transmission exist, ensure that they are set to a different multicast address.
③ **Destination Port**	For specifying the destination port number. Set to an even number for RTP compliance. Odd numbers cannot be used. When other devices that make use of multicast transmission exist, it is recommended that they are set to a different port number. Multiple multicast streams cannot be received on 1 computer when there are duplicate port numbers.
④ **Frame Rate**	Specify the frame rate when performing multicast transmission. The actual frame rate used for transmission will be the upper limit in the [Encoding] page even if a value that is larger than the frame rate in the Encoding page is specified. (☞ Page 34)

Note:
● When the power of VN-C20 shuts down accidentally during multicast transmission, transmission will restart automatically when VN-C20 is started up again.

Setting (continued)

Access Restrictions Page

This page is for setting client restrictions.

This page can be used during access using "admin".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.
● This feature is targeted at JPEG acquisition.It does not impose restrictions on access via a web browser or use of API.

① **Destination Address**		Restrictions may be imposed on clients accessing VN-C20 using the IP address.
	Access Restriction	When "deny" is selected, acquisition of JPEG via the IP address specified for the [IP Address] item will be denied. However, restrictions are not imposed on access to the Web Setting page. When "allow" is selected, acquisition of JPEG via the IP address specified for the [IP Address] item will be permitted. However, restrictions are not imposed on access to the Web Setting page.
	IP Address	When a multicast address is specified and "deny" is selected, VN-C20 will deny transmission to this multicast address. When a multicast address is specified and "allow" is selected, VN-C20 will only allow transmission to this multicast address and deny transmission to multicast addresses that are not stated in the [IP Address] field.

Cautions:

● Note that when "allow" is selected and all IP address fields are left blank, JPEG acquisition by all IP addresses will be denied. However, restrictions are not imposed on access to the Web Setting page. Additionally, VN-C20 will also deny access when instructions for transmission to the specified IP address are sent via API.

Notes:

● To specify a specific IP address range, enter a combination of the IP address and subnet mask in the [IP Address] field.
● Define the subnet mask using a bit length between 8 to 30.
For example, a range between 192.168.0.0 and 192.168.0.255 is specified as 192.168.0.0/24 ([IP address]/[bit length of subnet mask]).

Setting (continued)

Time Page

This page is for setting time.

This page can be used during access using "admin".
● Press the [OK] button to enable the new settings upon changing.
● If the [OK] button is pressed upon entering an invalid value, a warning message will appear and the entry will be denied. Press the [Cancel] button to restore the invalid entry to the current value.

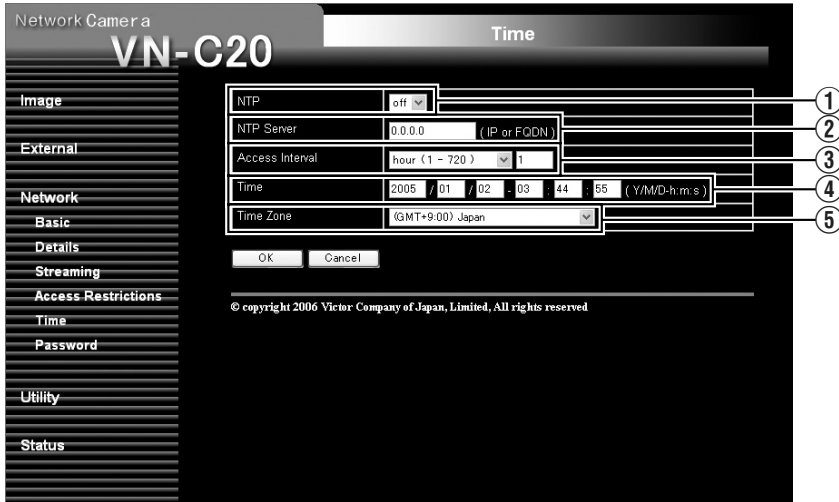| ① **NTP**	For setting the NTP client function. Access to acquire time from the specified NTP server at regular intervals is possible when this is enabled. In addition, time will be recorded in the JPEG headers distributed by VN-C20. Discontinuity in JPEG header's time may occur immediately before and after acquiring time from the NTP server.
② **NTP Server**	For setting the IP address of the NTP server. Install an NTP server and not an SNTP server.
③ **Access Interval**	For setting the time interval for access to the NTP server.
④ **Time**	Displays the time on the clock of VN-C20. The clock time can be changed by entering a value. (However, second value cannot be specified.) In addition, time will be recorded in the JPEG headers distributed by VN-C20. Discontinuity may occur in the JPEG header's time immediately before and after changing the time.
⑤ **Time Zone**	For setting the time zone.

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Password Page

This page is for setting the password.

This page can be used during access using "admin".
● Press the [OK] button to enable the new settings upon changing.

① **Username**	Select a user name.
② **New Password**	Enter a new password. Passwords shall be at least 4 characters and not more than 16 characters. VN-C20 is case sensitive.
③ **New Password Again**	Enter again to confirm the new password.

Cautions:

● Be sure to handle the password carefully in case you forget it.
● In the event that you forget the password, please consult JVC's servicing center.

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Setting (continued)

Maintenance Page

This page is for maintenance purposes.

This page can be used during access using "admin".

① **All Settings** "Restores all settings to their default values"	Restores all setting items to their factory settings and reboots the unit. (It takes about 1 minute for the camera to initialize and reboot.) Passwords will also be initialized. However, the built-in clock of VN-C20 will not be affected. JPEG transmission and all others services that are running will be discontinued.
② **Update**	Upgrades the firmware version of VN-C20 and reboots the unit. The VN-C20 settings will be saved. Copy the new firmware file to the computer on which Internet Explorer is used, and specify this file using the [Browse] button. Press the [Update] button to start upgrading the version. JPEG transmission and all others services that are running will be discontinued. Update may take several minutes. A message will be displayed on the Internet Explorer when update is successfully completed. **Caution:** • Do not turn off the power when version upgrade is in progress. Turning off the power of the camera may cause it to malfunction.

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List of Factory Settings of Each Page

■ Camera Page

Item	Factory Settings
Camera ID	VN-C20
DC Iris Level	0
AGC	On
Easy Day and Night	Off
Shutter Speed	1/60
Back Light Compensation	Off
White Balance	Auto
R-Gain	54
B-Gain	87
Pedestal	1
Enhance	0
Chroma	0

■ Encoding Page

Item	Factory Settings
Frame Size	VGA
Quality/Size	VFS4
FPS	15 fps
Fine	On
Turn Over	Off

■ Alarm Page

Item	Factory Settings
Action	Disable
1st Trigger	Input 1 Make
Max.Interval	–
2nd Trigger	Disable
Mail Address	–
Mail Text	–
Attach Image	Off
TCP/UDP IP Address	–
TCP/UDP Port Number	–
TCP/UDP Date	–
Alarm Output Duration	–

■ Alarm Environment Page

Item	Factory Settings
SMTP Server	0.0.0.0
Port Number	25
POP before SMTP	Off
POP Server	0.0.0.0
Port Number	110
Username	–
Password	–
FTP Server	0.0.0.0
Directory	–
Username	–
Password	–
Periodic FTP	off
Periodic FTP Interval	1
Periodic FTP Naming	Auto
Frame Rate	15 fps
Before Trigger	5 sec
After Trigger	5 sec
Output Duration	1000 msec
Manual Output 1	Break
Manual Output 2	Break

■ Motion Detection

Item	Factory Settings
Mask	Mask All
Detection	Off
Level	3

Setting (continued)

List of Factory Settings of Each Page (continued)

■ Basic Page

Item	Factory Settings
IP Seting	DHCP
IP Address	192.168.0.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
Host Name	–
Domain Name	–
DNS Server	0.0.0.0
MAC Address	–

■ Details Page

Item	Factory Settings
TOS(DS field)	0
TTL Unicast	64
TTL Multicast	32
MTU	1500
Negotiation	Auto

■ Streaming Page

Item	Factory Settings
Destination Address	225.0.1.1
Destination Port	49152
Frame Rate	15 fps

■ Access Restrictions Page

Item	Factory Settings
Access Restriction	deny
IP Address	–

■ Time Page

Item	Factory Settings
NTP	Off
NTP Server	0.0.0.0
Access Interval	hour/1
Time Zone	(GMT) UTC

■ Password Page

Item	Factory Settings
Username	"admin"
Current Password	Not Displayed Default passwords are: "admin" :vn-c20 "operator" :vn-c20 "user" :vn-c20

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Miscellaneous Page

This page is for acquiring information.

This page can be used during access using "admin", "operator" and "user".
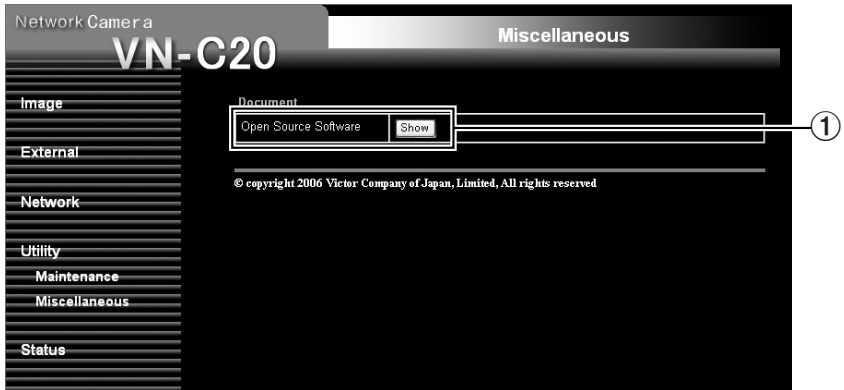
① **Open Source Software**	Press the [Show] button to display the software information used at VN-C20.

Setting (continued)

Operation Page

Displays the operating status of VN-C20.

This page can be used during access using "admin" or "operator".
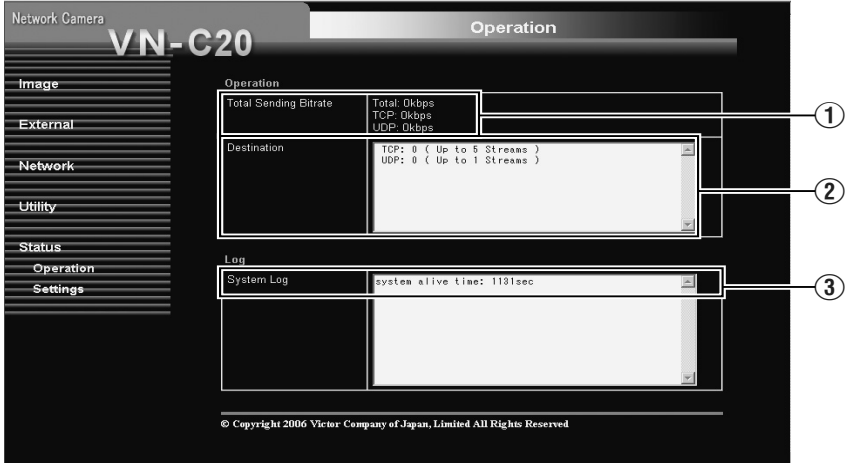
① **Total Sending Bitrate**	Displays the total TCP/UDP bit rate sent by VN-C20 as well as the individual bit rates.
② **Destination**	Displays the destination that VN-C20 is sending data to.
③ **System Log**	Displays the following information. ● Number of seconds after startup ● Alarm information

Settings Page

This page displays the version information and settings of VN-C20.

This page can be used during access using "admin" or "operator".

Setting (continued)

Settings Page (continued)

Alarm Environment

Mail	SMTP (SMTP Server: 0.0.0.0) SMTP (Port Number: 25) SMTP (POP before SMTP: off) POP (POP Server: 0.0.0.0) POP (Port Number: 110) POP (Username:)
FTP	FTP Server: 0.0.0.0 Directory: Username: Periodic FTP: off Periodic FTP Interval: 1 Periodic FTP Naming: Auto PrePostRecording Frame Rate: 15 fps PrePostRecording Before Trigger: 5 sec PrePostRecording After Trigger: 5 sec
Alarm Output	Output1 Duration : 0 msec Output2 Duration : 0 msec
Motion Detection	Status : off Level : 3

Network Basic

IP Address	192.168.0.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
Host Name	
Domain Name	
DNS Server	0.0.0.0
MAC Address	00:80:88:00:56:78

Network Details

TOS	0
TTL Unicast	64
TTL Multicast	32
MTU	1500
Negotiation	Auto

Streaming

Status	Address	Port	Frame Rate
---------	225.0.1.1	49152	15 fps

Network Basic

IP Address	192.168.0.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
Host Name	
Domain Name	
DNS Server	0.0.0.0
MAC Address	00:80:88:00:56:78

Network Details

TOS	0
TTL Unicast	64
TTL Multicast	32
MTU	1500
Negotiation	Auto

Streaming

Status	Address	Port	Frame Rate
--------	225.0.1.1	49152	15 fps

Access Restriction

Access Restriction	deny	
IP Address		

Time

NTP	NTP: off NTP Server: 0.0.0.0 Access Interval: 1 hour
Time / Time Zone	Time: 2006 / 01 / 19 - 18 : 12 : 36 (Y/M/D-h:m:s) Time Zone: (GMT+9:00) Japan

Operation of Built-in Viewer

Using the built-in viewer enables display of a series of images, one-shot recording of images and receiving of alarm information.

♦ Setting Up the Internet Explorer(☞ Page 61)
♦ Installing the built-in viewer(☞ Page 63)
♦ Screen Configuration of Built-in Viewer(☞ Page 64)
♦ Built-in Viewer Settings(☞ Page 66)
♦ Quitting the Built-in Viewer(☞ Page 69)
♦ Shortcut for Built-in Viewer(☞ Page 70)

Setting Up the Internet Explorer

1. Launch the Internet Explorer on the computer

2. When proxy settings are enabled in the Internet Explorer, follow the steps below to disable the proxy of the Internet Explorer

- Select in the order of [Tools]–[Internet Options]–[Connections]–[LAN Setting], followed by deselecting the check for "Use a proxy server for your LAN" in [Proxy Server] of the [Local Area Network(LAN)Settings] window.
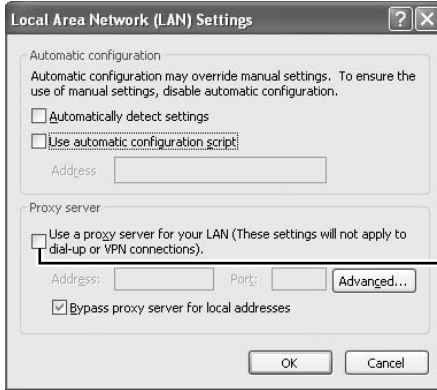
Deselect the check

Operation of Built-in Viewer (continued)

Setting Up the Internet Explorer (continued)

3. **If Active scripting of the Internet Explorer is disabled, follow the steps below to enable it**
- Click [Trusted sites] under [Tools]–[Internet Options]–[Security]. Upon doing so, the [Sites...] button directly below becomes active. Click on this button and deselect the check in the displayed window. Next, add the IP address of VN-C20.If the setting is factory default, add the following web site to the zone.

    http://192.168.0.2

- Click [Trusted sites] under [Tools]–[Internet Options]–[Security]. Select the [Custom Level] button and open the [Security Settings] window. From the opened window, set all the items in [Active X controls and piug-ins] to [Enable].
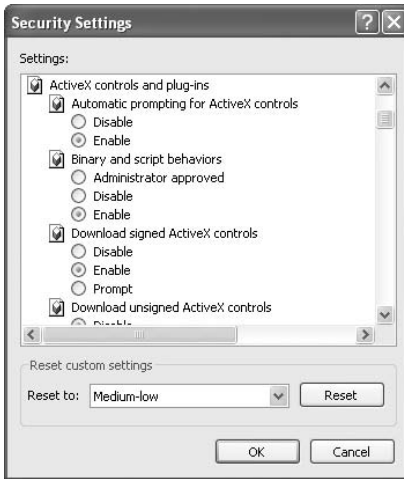
4. **If the pop-up block function of the Internet Explorer is enabled, follow the steps below to disable it**

    ※ The built-in viewer cannot be used when the pop-up block function is enabled.

- Selecting [Tools]–[Pop-up Blocker]–[Turn Off Pop-up Blocker] permits all sites.
- To allow only specific sites such as VN-C20, select [Tools]–[Pop-up Blocker]–[Turn On Pop-up Blocker], followed by selecting [Tools]–[Pop-up Blocker]–[Pop-up Blocker Settings] that becomes active, and open the [Pop-up Blocker Settings] window. In the opened window, add the address of VN-C20 as an allowed web site address.

5. **When plug-in tools such as the Yahoo or Google toolbar are included in the Internet Explorer, disable the pop-up block function of these plug-in tools as well**

Installing the built-in viewer

1. Enter the URL of the built-in viewer in the address field of Internet Explorer
For example, if the IP address of VN-C20 is 192.168.0.2, enter as follows:

http://192.168.0.2/cgi-bin/c20viewing.cgi

① Enter the URL in the built-in viewer of this camera.
(The default URL is http://192.168.0.2/cgi-bin/c20viewing.cgi) ② Click [Go].

2. Enter the user name and password

① Enter the user name.
This is set to "admin" by default.

② Enter the password.
This is set to "vn-c20" by default.

③ Click [OK].
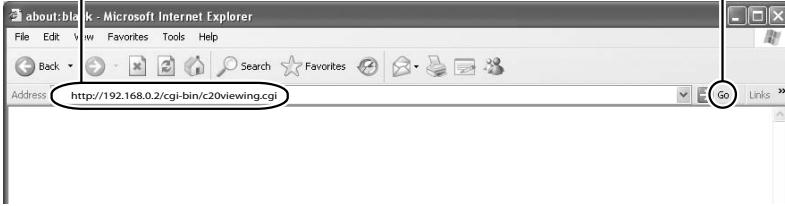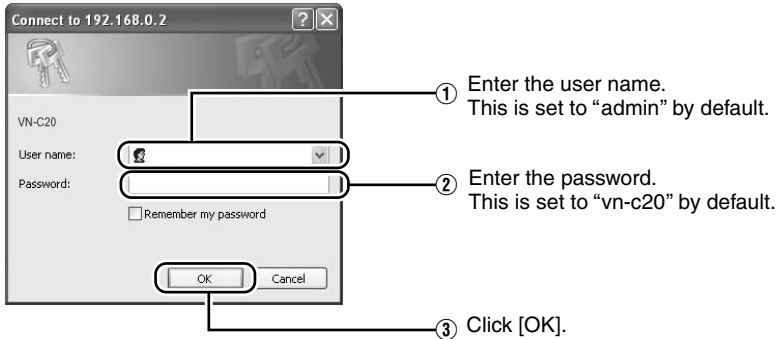
3. The viewer is installed and launched

Operation of Built-in Viewer (continued)

Screen Configuration of Built-in Viewer

● VN-C20 is set to encode at 15 fps by default.

① **Alarm**	Appears blinking when alarm packets are sent from VN-C20 to the computer. The alarm will continue blinking until the auto clear operation of the alarm is performed. Clicking the blinking button turns the light off.
② **Display Size**	Switches the display size. (VGA or QVGA)
③ **Pause**	Pauses/Resumes playback of images.
④ **Capture**	Captures the currently displayed image on the computer. Images captured will be stored as a JPEG file in the "C20_JPEG" directory that is created under [My Document] of the computer. The file name is made up of the millisecond, second/minute/hour and day/month/year. The time denoted by the file name is based on the time at the computer and not the internal clock of VN-C20. This feature is unable to capture motion images.
⑤ **Setup**	Displays the setting window of the built-in viewer. This setting screen is used to set the built-in viewer as a software on the computer. **Caution:** ● Settings on this setting screen are not applied as settings to the VN-C20 unit.

Operation of Built-in Viewer (continued)

Built-in Viewer Settings

The setting window of the built-in viewer will be displayed upon clicking the [Setup] button.

① **Turn Over**	Select "On" to display the image upside down. When this is set to "On", inversion processes that are applied may increase the load on the computer.If the computer's capacity is inadequate, therefore, the frame rate will deteriorate during transmission via TCP and noise occurs due to losses during packet reception via multicast.To use this feature with inversion set to "On", make sure that you use a computer with adequate performance, or reduce the processing load by adjusting the [Encoding] settings (file size, frame rate, frame size). (☞ Page 34)
② **Title**	Select "On" to display the camera ID. The camera ID can be set either at the VN-C20 unit or on the [Camera] page. (☞ Page 32)
③ **Time**	Select "On" to display the time. This indicates the time that is stored in the JPEG data.
④ **Display MD**	Selecting "On" displays the area for which motion is detected in a different color.

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⑤ **Frame Rate**	For selecting the acquisition frame rate of the viewer. In the case of a 1-to-1 connection between VN-C20 and the viewer, it is recommended that the frame rate of the viewer and VN-C20 be set to the same value. To play back multiple viewers at different frame rates, set the frame rate accordingly at the individual viewer. The frame rate set at the VN-C20 unit will be the upper limit to the acquisition frame rate of the viewer. For example, when VN-C20 is set to "15 fps", transmission will only be possible at "15 fps" even when the client requests for "30 fps". Alternatively, when VN-C20 is set to "15 fps" and "10 fps" is requested by the client, data will be sent at 7.5 fps to enable transmission at even intervals. When the frame rate set is smaller than that at the VN-C20 unit, the frame rate during transmission from VN-C20 decreases when acquisition is performed via HTTP. When acquisition is performed via multicast, data volume will not decrease even when a frame rate that is smaller than that at the VN-C20 unit is set, and the built-in viewer will play back images while skipping frames. Selecting a large frame rate will increase the processing load of the computer on which the viewer is running. **Caution:** ● This is different from the frame rate setting at the VN-C20 unit. Set to a rate such that the CPU burden of the computer does not exceed 80%. When the CPU is overloaded, the computer may not function properly.	
⑥ **Time Display Format**	Select the format for displaying time. YYYY,MM,DD denote year, month and day respectively while HH,MM,SS denote hour, minute and second respectively.	
⑦ **Stream**	For selecting the protocol when the viewer acquires data from VN-C20. When "HTTP" is selected, recovery will be performed via resending when packet loss occurs. VN-C20 may be monitored using multiple viewers when "Multicast" is selected. Additionally, start multicast sending on the Streaming page of the VN-C20 unit when playing back via multicast. **Caution:** ● When the built-in viewer is launched with "Multicast" specified, a Windows firewall warning may be displayed. In this case, select "Unblock" and proceed. ● If "Block" is selected, the Windows firewall will block the multicast streams and playback of multicast at the viewer will fail.	
⑧ **Multicast Address / Port**	For specifying the multicast address and port number. This is enabled only when "Multicast" is selected for the [Stream] item. Specify the same value as the parameter that is set on the [Streaming] page of VN-C20. (☞ Page 46)	

Operation of Built-in Viewer (continued)

Built-in Viewer Settings (continued)

⑨ **Alarm (TCP Notification)**	When "On" is selected, the [Alarm] button lights up when an alarm notification is sent from VN-C20 via TCP. In order to use this feature, it is necessary to set the alarm action for sending the notification to VN-C20 via TCP. Set the destination of the alarm action to the IP address of the computer that is used to operate the built-in viewer, and set the [TCP/UDP Port Number] item to the same number as the ⑩[Alarm Port Number] item below. There is no restriction on the character string used for setting the [TCP/UDP Date] item (☞ Page 36)
⑩ **Alarm Port Number**	For setting the port number for receiving the alarm notification from VN-C20 via TCP.
⑪ **Auto Alarm Clear**	For selecting the time interval to turn off the light automatically after [Alarm] button is illuminated.
⑫ **Cancel**	For canceling the changed settings and closing the setting screen.
⑬ **OK**	For saving the changed settings. Click [OK] to enable the new settings and restart the built-in viewer after closing the setting window.

Note:
● The settings of the built-in viewer are stored in the Cookie file.

This setting screen is used to set the built-in viewer as a software on the computer, and not applied as settings to the VN-C20 unit. When settings are changed, press the [OK] button to exit and restart the viewer.

Note:
Searching and deleting cookie files
● Enter the [Tools]–[Internet Options]–[Advanced] of the Internet Explorer and press the [Settings] button under [Temporary Internet Files]. A new [Settings] will appear. Press the [View Files] button in this window. The [Temporary Internet Files] window opens up and a list of files will be displayed.The file named"cgi-bin/"in this list is the Cookie for the built-in viewer.
● Deleting this file also deletes the viewer settings. The viewer will start up using the initial settings during the next launch.

Quitting the Built-in Viewer

To quit, press the [Close] button at the top right of the window.

Click [Close]

● To restart the built-in viewer, launch the Internet Explorer and enter the URL of the built-in viewer in the address field.
For example, if the IP address of VN-C20 is 192.168.0.2, enter as follows:

http://192.168.0.2/cgi-bin/c20viewing.cgi

● After the "Security Settings" screen appears, press the [OK] button to proceed.

Operation of Built-in Viewer (continued)

Shortcut for Built-in Viewer

Creating a shortcut for the built-in viewer on the Desktop screen of the computer saves you the trouble of having to enter the URL in the Internet Explorer.
Create the shortcut using the procedures below.

1. Launch the Internet Explorer

2. Right-click on Internet Explorer on the screen and select [Create Shortcut]
Click the [OK] on the confirmation screen and a shortcut will be created on the Desktop screen.

3. Right-click on the shortcut icon on the Desktop screen and select Properties
The setting screen appears.

4. Enter the URL of the built-in viewer in the URL field
For example, if the IP address of VN-C20 is 192.168.0.2, enter as follows:

http://192.168.0.2/cgi-bin/c20viewing.cgi

5. Click the [OK] button to end
Clicking on the shortcut created will help to save you the trouble of having to enter the URL in the Internet Explorer.

Note:
● Before starting up the built-in viewer using the shortcut, close all Internet Explorer windows. Starting up the built-in viewer using the shortcut while leaving other Internet Explorer windows opened may result in malfunction of the built-in viewer.

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Troubleshooting

Symptom	Causes and Countermeasures	Reference Page
IP address of VN-C20 is unknown	● This is 192.168.0.2 in the default settings, and the subnet mask is 255.255.255.0. ● When the DHCP client is set to "ON", VN-C20 will run using the IP address in the default settings when it is started up via a LAN in which a DHCP server does not exist. ● If it is started up using a computer that is configured within the same LAN, you can search for the IP address using the search tool.	☞ Page 26
The web page of VN-C20 cannot be displayed	Check the Internet Explorer settings. When a proxy server is in use, configure the proxy server settings of the Internet Explorer accordingly.	☞ Page 27
The built-in viewer cannot be installed	Check the Internet Explorer settings. The built-in viewer consists of a software component called ActiveX. When using the built-in viewer for the first time, the ActiveX is supposed to be installed. However, the installation may be rejected depends on the setting of the AntiVirus software. In such case, change the setting of the AntiVirus software, and then install the built-in viewer.	☞ Page 61
Authentication by Verisign appears during installation of the built-in viewer	Verisign's electronic signature is stored in the built-in viewer. For computers with a network environment that is connected to the Internet, the authenticity of the viewer can be verified via authentication by Verisign.	–
A warning message appears upon starting up the built-in viewer	The built-in viewer consists of a software component called ActiveX. When using the built-in viewer for the first time, the ActiveX is supposed to be installed. However, the installation may be rejected depends on the setting of the AntiVirus software. In such case, change the setting of the AntiVirus software, and then install the built-in viewer.	–
TCP images cannot be played back	The maximum number of JPEG images that can be sent by VN-C20 via TCP is 5, and up to 5 built-in viewers can be connected to each VN-C20 unit. Make use of multicast to monitor areas beyond the above number. VN-C20 allows multicast transmission of up to 1 stream.	☞ Page 20

Symptom	Causes and Countermeasures	Reference Page
Multicast images cannot be played back	● Start multicast transmission manually from the [Streaming] page of VN-C20. ● In the case of multicast reception at the built-in viewer, check that the multicast address and port number of the built-in viewer settings coincide with those on the [Streaming] page of VN-C20. Make use of a network that supports IGMP for multicast transmission. ● Multicast may be blocked by the WindowsXP firewall.When this occurs, perform the following to allow it to pass through. ● Double-click on [Windows Firewall] in [Start]-[Control Panel], click the [Add Port...] button under the Exception tab, followed by registering the port number in the port number field for which you want it to pass through. Enter an arbitrary character string in the name field.	☞ Page 46 ☞ Page 66
The frame rate of the displayed image is low	● Check the settings on the [Encoding] page of the VN-C20 unit. ● Check the built-in viewer settings as well when a built-in viewer is in use. ● Frame rate will be constrained when the network bandwidth is narrow.	☞ Page 34 ☞ Page 66
A white zone appears in the built-in viewer.	● For some computers, a part of the Internet Explorer graphics may not appear and is left white when the following setting is performed on the Internet Explorer. ● Right-click on the Desktop screen. If −[Properties]−[Settings]−[Advanced]−[Advanced]−[DPI setting] is set to "Large size" or "Custom size", select "Normal size" to resume normal drawing.	−
Unable to receive alarm notification at the computer via TCP/UDP	● Data may be blocked by WindowsXP firewall.When this occurs, perform the following to allow it to pass through. ● Double-click on [Windows Firewall] in [Start]-[Control Panel], click the [Add Port...] button under the Exception tab, followed by registering the port number in the port number field for which you want it to pass through.Enter an arbitrary character string in the name field.	

Specifications

Camera Unit

Image pickup device

        : 1/3 inch Interline transfer CCD

Effective pixels   : Approx. 380,000 pixels

        768 (H) $\times$ 494 (V)

Lens mount   : C/CS mount

[Analog Video]

Composite video $\times$ 1 (75 Ω, 1 Vp-p)

Color System   : NTSC

Horizontal resolution

        : 480 TV lines (typ.)

Minimum object illumination

        : 2.5 lx (typ. 50 %, F1.2, AGC ON)

        : 1.0 lx (typ. 25 %, F1.2, AGC ON)

        : 1.0 lx (typ. 50 %, F1.2, Easy Day and Night ON)

        : 0.4 lx (typ. 25 %, F1.2, Easy Day and Night ON)

Video S/N ratio : 50 dB (typ. 50 %, AGC OFF, Enhance: -3)

[Network]

Image compression format

        : JPEG

Frame size   : 640 $\times$ 480, 320 $\times$ 240

Network interface

        : RJ-45 100BASE-TX/10BASE-T/ FULL/HALF/auto negotiation supported

LAN Specifications

Compliant with IEEE802.3, IEEE802.3u and IEEE802.3af

Communication protocol: TCP/IP, UDP, HTTP, FTP, ICMP, ARP, RTP, DHCP, NTP, SMTP, IGMP

General

Alarm input   : No-voltage a contact input, NPN open collector input, low level, latch/momentary (500 ms and above) (Circuit current during low level: 0.3 mA; Applied voltage during high level: 3.3 V)

Alarm output   : NPN open collector output (Allowable applied voltage: 12 V; Allowable inflow current: 50 mA)

Internal memory : 8 MB

Supply voltage : AC24 V, 50 Hz/60 Hz or DC -48 V (Supply by power feeding device that supports Power over Ethernet)

Consumption current

        : 0.5 A (Max.)

Ambient temperature

        : -10 ºC to 50 ºC(operation)

        0 ºC to 40 ºC(recommended)

Ambient humidity : 20% to 85% RH(without condensation)

Mass   : Approx. 560g

Attachments/Accessories
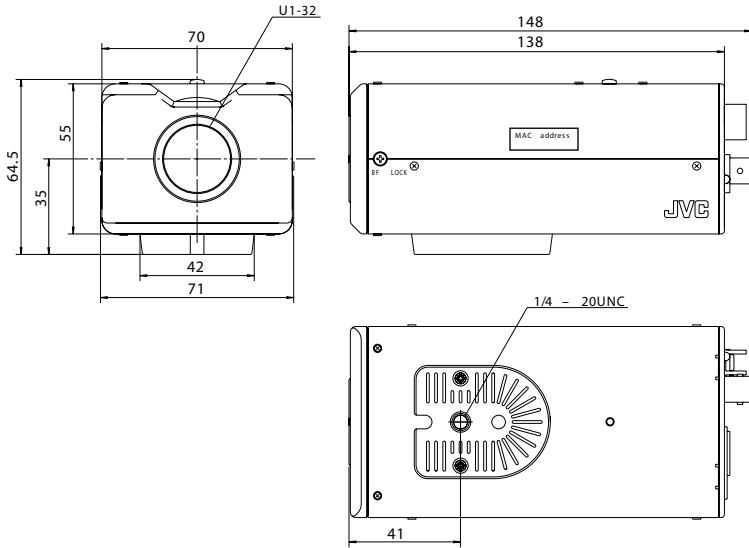
        : Start-up Guide................... 1

        CD-ROM 1

        Warranty Card................... 1

        Service Information Card ... 1

Dimension [Unit: mm]

※ Specifications and appearance of this product are subject to changes for improvement without prior notice.

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